on the page on which the experiment is described, might not be seen till too late; and a similar criticism might be made of the lack of warning, in the proper place, of the dangerous character of prussic acid and of the precautions demanded in the use of cyanides, especially when treated with acids.

It will be seen from this discussion of the book that it contains many valuable features, and that its use in the classroom should produce good results if supplemented by a more intensive theoretical discussion on the part of the instructor, or if used in elementary laboratory courses in which the theory of solutions is to be omitted or merely touched upon.

A Manual of Qualitative Chemical Analysis. By J. F. McGregory. Revised edition. Boston: Ginn & Co., 1909. Pp. xiv+135. $1,00.

This book represents essentially an outline and laboratory manual for the study of qualitative anaylsis. The discussion of modern theories is avoided, and the chemistry of the reactions involved is treated chiefly by giving the names and formulae of the reaction products. This treatment of the subject is not in line with the developments of the past fifteen years in the teaching of chemistry. Judging the book, however, from the point of view from which it was written, we may say that the material is well presented. Only a few of the errors found in the old textbooks have crept into this one: thus the formula for silver ammonia hydroxide is given as NH_4AgO instead of $(NH_3)_2AgOH$ (p. 3), and the formula for the solution of silver ammonium chloride is incorrectly given as $(NH_3)_3(AgCl)_2$ (p. 4); ferrous sulphide is named instead of ferric sulphide as the reaction product when ammonium sulphide is added to ferric salts (p. 17); and the author fails to call attention to the fact that cupric salts are largely reduced by potassium cyanide in ammoniacal solutions, yielding chiefly potassium cupro-cyanide rather than the corresponding cupric salt (p. 8).

The systematic analysis is well arranged, but some of the separations of the groups are a trifle complicated. This is particularly true of the iron groups, for which the old ammonium chloride and ammonium hydroxide separation is recommended. The necessary precautions are described, but the author does not state in detail what all of the difficulties are, so that the student is compelled to work blindly. Thus, while it is explained that in the presence of phosphates, etc., the alkaline earth group may be precipitated with the aluminum group, it is nowhere made clear that this may be true also of members of the zinc group. Finally, attention should be called to the fact that the author suggests for the purpose of removing iodine the addition of ferric chloride to a solution which is later to be tested for chloride (p. 111).

Aside from these errors, the book should prove useful in a course in which it is desired to omit the modern theories, for it contains, in very compact form, a great deal of information which students in qualitative analysis must have.

Hermann I. Schlesinger

The University of Chicago